

Title (en)
TUNGSTEN CARBIDE CATALYST, ITS PREPARATION METHOD AND ITS USE IN OBTAINING ETHYLENE GLYCOL BY CELLULOSE

Title (de)
WOLFRAMCARBIDKATALYSATOR, HERSTELLUNGSVERFAHREN DAFÜR UND VERWENDUNG BEIM ERHALT VON ETHYLENGLYKOL DURCH CELLULOSE

Title (fr)
CATALYSEUR À BASE DE CARBURE DE TUNGSTÈNE, SON PROCÉDÉ DE PRÉPARATION ET SON UTILISATION POUR OBTENIR DE L'ÉTHYLÈNE GLYCOL À PARTIR DE CELLULOSE

Publication
EP 2322275 A4 20140409 (EN)

Application
EP 08876731 A 20081031

Priority

- CN 2008072892 W 20081031
- CN 200810012830 A 20080814

Abstract (en)
[origin: US2010255983A1] Tungsten carbide catalysts are used in preparation of ethylene glycol by hydrogenating degradation of cellulose. The catalyst includes tungsten carbide as main catalytic active component, added with small amount of one or more transition metals such as nickel, cobalt, iron, ruthenium, rhodium, palladium, osmium, iridium, platinum, and copper as the second metal, supported on one or more porous complex supports such as active carbon, alumina, silica, titanium dioxide, silicon carbide, zirconium oxide, for conversion of cellulose to ethylene glycol. The catalyst realizes high efficiency, high selectivity, and high yield in the conversion of cellulose to ethylene glycol at the temperature of 120-300 ° C., hydrogen pressure of 1-10 MPa, and hydrothermal conditions. Compared to the existing industrial synthetic method of ethylene glycol using ethylene as feedstock, the invention has the advantages of using renewable raw material resources, environment friendly process, and excellent atom economy.

IPC 8 full level
B01J 27/22 (2006.01); **B01J 37/02** (2006.01); **C07C 31/20** (2006.01)

CPC (source: EP US)
B01J 21/18 (2013.01 - EP US); **B01J 23/6527** (2013.01 - EP US); **B01J 23/888** (2013.01 - EP US); **B01J 27/22** (2013.01 - EP US); **B01J 37/0201** (2013.01 - EP US); **B01J 37/08** (2013.01 - EP US); **C07C 29/00** (2013.01 - US); **C07C 29/132** (2013.01 - EP); **Y02P 20/52** (2015.11 - EP US)

Citation (search report)

- [XA] CHANGHAI LIANG ET AL: "Preparation and Adsorption Properties for Thiophene of Nanostructured W 2 C on Ultrahigh-Surface-Area Carbon Materials", CHEMISTRY OF MATERIALS, vol. 15, no. 25, 1 December 2003 (2003-12-01), pages 4846 - 4853, XP055091741, ISSN: 0897-4756, DOI: 10.1021/cm034399c
- [XP] NA JI ET AL: "Direct Catalytic Conversion of Cellulose into Ethylene Glycol Using Nickel-Promoted Tungsten Carbide Catalysts", ANGEWANDTE CHEMIE INTERNATIONAL EDITION, vol. 47, no. 44, 20 October 2008 (2008-10-20), pages 8510 - 8513, XP055003507, ISSN: 1433-7851, DOI: 10.1002/anie.200803233
- [L] JI N ET AL: "Catalytic conversion of cellulose into ethylene glycol over supported carbide catalysts", CATALYSIS TODAY, ELSEVIER, NL, vol. 147, no. 2, 30 September 2009 (2009-09-30), pages 77 - 85, XP026470036, ISSN: 0920-5861, [retrieved on 20090417], DOI: 10.1016/J.CATTOD.2009.03.012
- See references of WO 2010017681A1

Cited by
EP2548858A4; EP2548858B1

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)
US 2010255983 A1 20101007; **US 8338326 B2 20121225**; BR PI0822635 A2 20150616; CA 2720693 A1 20100218; CA 2720693 C 20160216; CN 101648140 A 20100217; CN 101648140 B 20110907; EP 2322275 A1 20110518; EP 2322275 A4 20140409; EP 2322275 B1 20200729; MX 2010011282 A 20101109; US 2012283487 A1 20121108; US 8692032 B2 20140408; WO 2010017681 A1 20100218

DOCDB simple family (application)
US 73476308 A 20081031; BR PI0822635 A 20081031; CA 2720693 A 20081031; CN 2008072892 W 20081031; CN 200810012830 A 20080814; EP 08876731 A 20081031; MX 2010011282 A 20081031; US 201213539041 A 20120629